Remarks/Arguments

Applicants gratefully acknowledge the courtesy shown by Examiner Steadman in the telephonic interview with representatives for the Applicant, Scott Elmer (reg. no. 36,129) and the undersigned Shawn Hawkins, on October 11, 2005. During the interview the new matter objection under 25 U.S.C. 132 (a); the indefiniteness rejection under 35 U.S.C. § 112, second paragraph and the written description rejection under 35 U.S.C. § 112, first paragraph were discussed. Pursuant to the interview, Applicants include below arguments in support of their positions on these issues.

Claims 1-2, 4-8, 10-11, 13-15 and 32-33 are pending. All claims have been rejected. In the present response, claims 1, 2 and 32 have been amended, claim 33 has been canceled without prejudice and new claim 34 has been added. Support for the amended claims can be found on page 3, lines 25 – 29 and page 15, lines 16 – 17. Support for new claim 34 can be found on page 4, line 22 – 25 and the addition of SEQ ID NO:5, listing the human nucleotide sequence of genbank 3288851.

Applicants have revised the description of SEQ ID NO:4 on page 3 line 30 of the specification to clarify that the genbank number provided is the nucleotide sequence of mouse dab1 which encodes the Dab1 protein. Applicants have added new SEQ ID NO:5, which is the human dab1 nucleotide sequence. Support for including SEQ ID NO:5 can be found on page 4 beginning on line 22 identifying the genbank number 3288851, which lists the human dab1 nucleotide sequence.

Applicants have revised the paragraph on page 4, beginning on line 22 of the specification to clarify that Cdk5 is phosphorylated by reelin induced kinase activity rather than by reelin kinase activity. Support for reelin tyrosine induced kinase activity can be found on page 14, lines 7 – 14; page 24, lines 5 – 10; and page 25, lines 27 – page 26, lines 2.

No new matter has been added by way of these amendments to the claims and specification. Reconsideration and withdrawal of the rejections are respectfully requested in light of these amendments and the following remarks.

35 U.S.C. § 132(a)

The Examiner objected to the amendment filed 4/25/2005 for introducing new matter into the disclosure in the form of new SEQ ID No. 4. Applicants request that the sequence listing filed on April 25, 2005 be canceled to remove the sequence asserted to be new matter by the Examiner.

In place of the canceled sequence listing, Applicants request that the paper copy of the sequence listing filed herein be entered into the specification. The new sequences found in SEQ ID NOs:4 and 5 are identical to their respective nucleotide sequences found in GenBank Accession Numbers 1771281 and 3288851 at the time of filing of the instant application. These Gen Bank Accession Numbers are cited in the specification on page 4 lines 24-25.

In view of the above arguments and amendments, all grounds for the rejection under 35 U.S.C. § 132(a) have been obviated or overcome. Reconsideration and withdrawal of this rejection are respectfully requested.

37 CFR 1.821

The Examiner objected to claim 33 for lack of a sequence identifier for GenBank Accession number 1171281. Applicants have canceled claim 33 rendering this objection moot.

35 U.S.C § 112, Second Paragraph

Claims 1, 4-8, 10-11,13-15 and 33 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as the invention. The Examiner asserts that the definitions for Cdk5 and Dab1 found in the specification are overly broad so that the scope of the claims remain unclear. The Examiner noted that claims 2 and 32 were not included in the instant rejection since these claims limited the Dab1 polypeptide to a specific sequence, namely that of SEQ ID NO:4.

Applicants respectfully traverse the rejection. In an attempt to address the Examiner's concerns, Applicants have amended claim 1 to require that the Dab1 protein include SEQ ID NO: 3. Support for SEQ ID NO: 3 can be found on page 3, lines 25 - 29

and page 15, lines 16 - 17. SEQ ID NO:3 comprises 14 amino acids found in the c-terminal portion of the Dab1 protein in several different species including mouse, rat, human and avian. Furthermore, proteins other than Dab1, even closely related proteins such as Dab2, do not share this sequence. Inclusion of SEQ ID NO:3 into the claims provides a structural basis for distinguishing Dab1 from other proteins to supplement the distinguishing features of Dab1 noted in the specification. With this addition, Applicants respectfully submit that the reference to Dab1 in the claims excludes other proteins and is sufficiently definitive.

As for the scope of Cdk5 proteins, the Examiner indicated in the previous office action that the specification discloses that phosphorylation of the Dab1 protein on a serine corresponding to positions 491 and 515 is Cdk5 specific for murine Dab1, and there is no evidence to suggest that Cdk5 from other species would not phosphorylate Dab1 having a serine corresponding to position 491 and 515. Therefore, when the scope of Dab1 proteins is clear the scope of Cdk5 polypeptides whose activity is measured by virtue of phosphorylation of Dab1 is clear. By including SEQ ID NO:3 in the claims, Applicants have defined the scope of Dab1 proteins; therefore, the scope of Cdk5 is clear.

The Examiner asserts that claim 2 is confusing in the recitation of "a serine corresponding to position 491 of SEQ ID NO:4 and a serine corresponding to position 515 of SEQ ID NO:4" since the claim is limited to SEQ ID NO:4. The Examiner interpreted the claim as meaning that "a serine corresponding to position 491 of SEQ ID NO:4" is the serine at position 491 of SEQ ID NO:4 and "a serine corresponding to position 515 of SEQ ID NO:4" is the serine at position 515. The Examiner suggests that Applicants clarify the meaning of the claim.

Applicants clarify that the meaning of "corresponding to" in this context means the serines at the noted positions of the murine Dab1 polypeptide encoded by SEQ ID NO: 4 as well as serines at these corresponding positions in Dab1 polypeptides from other species. These serines may occur at slightly different numerical positions on Dab1 polypeptides from other species, but they can be readily identified by one of skill in the art as corresponding to the serines identified in the murine Dab1 polypeptide based on an alignment with the murine Dab 1 polypeptide sequence.

The Examiner asserts that claim 33 is indefinite in the recitation of "GenBank Accession Number 1771281". Applicants respectfully disagree and maintain that genbank accession numbers provide an adequate, if not preferred, reference for those of skill in the art for well known genetic sequences and polypeptide sequences. However, in an attempt to further prosecution, Applicants have canceled claim 33.

In view of the above arguments and amendments, all grounds for the rejections under 35 U.S.C. § 112, second paragraph have been obviated or overcome. Reconsideration and withdrawal of these rejections are respectfully requested.

35 U.S.C. § 112, First Paragraph

The Examiner rejected claims 1-2, 4-8, 10-11, 13-15 and 32 under 35 USC 112, first paragraph, for failing to comply with the written description requirement. The Examiner rejected the claims for introducing new matter based on the addition of SEQ ID NO:4 which is the protein sequence of Dab1. Applicants added this sequence in their previous amendment based upon reference in the specification to GenBank Accession Number 1771281 which lists the nucleotide sequence of dab1, but also provides the coding sequence of the Dab1 protein.

Applicants traverse this rejection for the same reasons given above with respect to claim 33. However, in an effort to further prosecution, Applicants have requested that the sequence listing filed on April 25, 2005 be canceled and a new sequence listing filed herein be incorporated into the specification. The sequence listing filed herein contains new SEQ ID NOs: 4 (mouse dab1 nucleotide sequence) and 5 (human dab1 nucleotide sequence). Support for including these sequences can be found on page 4, lines 22 – 25. SEQ ID NOs: 4 and 5 are identical to the sequences found in GenBank Accession Nos: 1771281 and 3288851 at the time of filing of the instant application.

The Examiner rejected claims 1, 4-8, 10-11, 13-15 and 33 for failing to comply with the written description requirement. The Examiner asserts that the claims are drawn to a method for detecting Cdk5 activity by determining whether a genus of Dab1 proteins is phosphorylated on a specific serine and that an invention involving a genus requires a precise definition, such as a structure, formula or chemical name of the claimed subject matter to sufficiently distinguish it from other materials.

Applicants respectfully traverse the rejection. Claim 1 has been amended so that the Dab1 proteins included within the scope of the claims of the present application comprise the amino acid sequence of SEQ ID NO.3. Support for SEQ ID NO:3 can be found on page 3, lines 25 - 29 and page 15, lines 16 - 17. As discussed above, inclusion of SEQ ID NO:3 into the claims provides a clear definition of the Dab1 proteins encompassed by the scope of the claims.

Enablement Rejection

The Examiner rejected claims 1, 4-8, 10-11, 13-15 and 33 under 35 U.S.C. 112, first paragraph for lack of enablement. It is the Examiner's position that undue experimentation is required for a skilled artisan to make and/or use the entire scope of the claimed invention. Applicants respectfully traverse this rejection insofar as it may be applied to the claims as amended herein.

It appears that the basis for this rejection is due in whole or in large part to an expanded interpretation of the terms "Cdk5" and "Dab1" to include proteins other than those Applicants intended. Applicants have clarified the meaning of these terms through the amendments and remarks made herein. With this clarification Applicants respectfully submit that the basis for this rejection has been obviated and the claims have been limited to a scope which is enabled by the teachings of the specification.

Applicants have shown in Example 1 beginning on page 19 line 19 – page 21 line 2 that murine Dab1 is specifically phosphorylated at two serines in response to activated Cdk5 and that these phosphorylation events can be used as an indirect detector of Cdk5 activity. Applicants also showed in Exhibit C of its response dated April 25, 2005, to an outstanding office action that Cdk5 phosphorylates Dab1 on serine 491 in rats. Having shown specific examples of how specific serine Dab1 phosphorylation can be used as a proxy for Cdk5 activity in mouse and rat, Applicants respectfully submit that one of skill in the art would have no problem using this method to detect the activity of any Cdk5 within the scope of the claims.

In view of the above arguments and amendments, all grounds for the rejection under 35 U.S.C. § 112, first paragraph have been obviated or overcome. Reconsideration and withdrawal of these rejections are respectfully requested.

Conclusion

It is believed that all the rejections have been obviated or overcome and the claims are in condition for allowance.

It is not believed that extensions of time or fees for net addition of claims are required. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 501968.

Respectfully submitted,

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